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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,388	06/28/2001	Joachim P. Walser	020431.0755	1011

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EXAMINER	
SHERR, CRISTINA O	
ART UNIT	PAPER NUMBER
3685	

NOTIFICATION DATE	DELIVERY MODE
04/29/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/896,388	WALSER ET AL.	
	Examiner	Art Unit	
	CRISTINA SHERR	3685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-7,9,12,13,15,17,20,21,23,25 and 26* is/are pending in the application.

4a) Of the above claim(s) *6,13 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4, 5, 7, 9, 12, 15, 17, 20, 21, 23, and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to Applicant's Amendment filed January 13, 2010. Claims 1, 4-7, 9, 12-13, 15, 17, 20-21, 23, and 25-26 are currently pending in this case. Claims 1, 4, 5, 7, 9, 12, 15, 17, 20, 21, 23, and 25 are under examination. Claims 6, 13, and 26 were previously withdrawn. Claims 1, 9, 17, and 25 are currently amended.

Response to Arguments

2. Applicant's arguments filed January 13, 2010 have been fully considered but they are not persuasive.

3. Applicant argues, regarding claims 1, 9, 17, and 25 that nothing in the cited prior art teaches, discloses or suggests, a "transition graph comprising a plurality of stages, each stage representing a time interval and comprising one or more states and a plurality of paths, each path comprising a plurality of states" or "each state having a price value, an inventory value, and a state value".

4. We note, firstly, that the newly-added language "a plurality of states . . ." constitutes nonfunctional data which will not distinguish the invention from the prior art in terms of patentability. *In re Gulack*, 217 USPQ 401 (Fed. Cir. 1983), *In re Ngai*, 70 USPQ2d (Fed. Cir. 2004*), In re Lowry*, 32 USPQ2d 1031 (Fed. Cir. 1994); MPEP 2106.01 II.

5. Examiner respectfully disagrees and directs attention to Anandalingam who discloses a method for generating a set of constraints, the method comprising generating a transition graph comprising a plurality of stages, each stage representing a

time interval and comprising one or more states and a plurality of paths, each path comprising a plurality of states, each state having a value, an inventory value, and a state value, the transition graph being generated by repeating the following for a the plurality of stages until a final stage is reached: determining the value of a successor state; calculating the inventory value of the successor state using the value and the inventory value of a predecessor state; and calculating the state value of the successor state using the value of the predecessor state; selecting a path of the plurality of paths according to the state values of the one or more states; and determining a schedule from the selected path. (e.g. pg 1, pg 2, noting that a hierarchical optimization involves repeating for K levels an optimization of each level, the constraints of one level being the start of the next level.)

6. With respect to claims 9 and 25, note also that a recitation with respect to the material intended to be worked upon by a claimed apparatus does not impose any structural limitations upon the claimed apparatus which differentiates it from a prior art apparatus satisfying the structural limitations of that claimed. *Ex parte Masham*, 2 USPQ2d 1647 (1987). In this case, the prior art shows computers which achieve the same results --a price schedule – as the instant application. The use of a different set of calculations does not further distinguish the claims from the prior art.

7. Applicant argues, regarding claim 1, there is no basis for Official Notice as taken in the Non-final Rejection issued October 20. 2009, 2008, that it is old and well-known to in the field of operations research to use mathematical optimization models to determine the pricing of items.

8. Examiner respectfully disagrees and directs attention to the following references, all which deal use mathematical optimization models to determine the pricing of items

- Gallego, et al. (Optimal Dynamic Pricing of Inventories with Stochastic Demand over Finite Horizons), (e.g. pg1001/sec 1.1, pg1003/sec 2.1, pg1017/sec 6)
- Subrahmanyan, et al. (Using quantitative models for setting retail prices), (e.g. pg 5of13/par 8)
- Cheng, et al. (A Periodic Review Inventory Model with Demand Influenced by Promotion Decisions), (e.g. pg 1512/full par 6-9, pg 1512/sec2)
- Chatwin (Optimal dynamic pricing of perishable products with stochastic demand and a finite set of prices) (e.g. pg 155/sec4, pg 169/sec7)
- Krishnan, et al. (Optimal Pricing Strategy for New Products) (e.g. pg 1650,/par 2, pg 1652/par 1, pg 1654/par 2-3)

9. These references illustrate and/or describe the use of optimal control methodologies, specifically dynamic programming (DP) methods for establishing an optimal sequence of decisions. Gallego [p.1005] specifically describes "sample paths of this optimal price..." where the path corresponds to a sequence of time intervals, hence a schedule. Subrahmanyan [p.3 and 5 of pdf file] describes pricing models using DP methods and further states "Price path declines over the season". Cheng teaches an optimized inventory control model also using DP methods where demand is affected by promotion decisions and where "the price discount can be easily incorporated in the model by treating it as a part of the promotion cost." (Cheng [p.1513, Remark 2.2]). Finally Chatwin and Krishnan use DP methods and specifically teaches "time

dependent, price paths" (Chatwin [p. 151, col.2]) and dynamic pricing (Krishnan [p.1654]).

10. Therefore, it would have been obvious to a person having ordinary skill in the art to use the known method of hierarchical optimization, as disclosed in Anandalingam, for the purpose of optimizing prices of items because the known method of hierarchical optimization and DP would improve the prices of the items in a predictable way. The optimized prices would help to increase profits.

11. Applicant argues, regarding claim 1, that there is no basis for Official Notice as taken in the Non-final Rejection issued October 20, 2009, that it is old and well-known to in the field of operations research for data to be modeled and a graph generated with respect to changes over time.

12. Examiner respectfully disagrees and directs attention to the following reference - e.g., Model/Data Comparison of Time Series Velocity at the Boston Buoy, where data is modeled and a graph generated with respect to changes over time, (http://woodshole.er.usgs.gov/operations/modeling/mbayopen/node29.html) (1991).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1, 4, 5, 7, 9, 12, 13, 15, 17, 20, 21, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anandalingam, "Hierarchical Optimization: An Introduction" (hereinafter Anandalingam).

15. Regarding claims 1, 9, 17, and 25 -

16. Anandalingam discloses a method for generating set of constraints, the method comprising generating a transition graph comprising a plurality of stages, each stage representing a time interval and comprising one or more states and a plurality of paths, each path comprising a plurality of states, the plurality of states each having at least one predecessor state coupled to at least one successor state by a transition, each state having a value, an inventory value, and a state value, the transition graph being generated by repeating the following for a the plurality of stages until a final stage is reached: determining the value of a successor state; calculating the inventory value of the successor state using the value and the inventory value of a predecessor state; and calculating the state value of the successor state using the value of the predecessor state; selecting a path of the plurality of paths according to the state values of the one or more states; and determining a schedule from the selected path. (e.g. pg 1, pg 2, noting that a hierarchical optimization involves repeating for K levels an optimization of each level, the constraints of one level being the start of the next level).

17. Anandalingam does not specifically disclose that the optimization is for a pricing plan, or that the optimization is used to generate an optimized pricing plan for a product. However, this Examiner took Official Notice in a previous Office Action of the parent application (see the Non-final Rejection of 20 October 2009 in case 09/896,388) that it

is old and well-known as well as common place in the field of operations research to use mathematical optimization models to determine the pricing of items. Models are formulas that take input numbers and generate output numbers. The formulas themselves do not need to change based upon what the intended use of the formula is, only the input numbers. The use of a model yields predictable results no matter how the user characterizes the inputs. Among a number of possible references that illustrate this Official Notice are the following:

- Gallego, et al. (Optimal Dynamic Pricing of Inventories with Stochastic Demand over Finite Horizons), (e.g. pg1001/sec 1.1, pg1003/sec 2.1, pg1017/sec 6)
- Subrahmanyan, et al. (Using quantitative models for setting retail prices), (e.g. pg 5of13/par 8)
- Cheng, et al. (A Periodic Review Inventory Model with Demand Influenced by Promotion Decisions), (e.g. pg 1512/full par 6-9, pg 1512/sec2)
- Chatwin (Optimal dynamic pricing of perishable products with stochastic demand and a finite set of prices) (e.g. pg 155/sec4, pg 169/sec7)
- Krishnan, et al. (Optimal Pricing Strategy for New Products) (e.g. pg 1650,/par 2, pg 1652/par 1, pg 1654/par 2-3)

18. These references illustrate and/or describe the use of optimal control methodologies, specifically dynamic programming (DP) methods for establishing an optimal sequence of decisions. Gallego [p.1005] specifically describes "sample paths of this optimal price..." where the path corresponds to a sequence of time intervals, hence a schedule. Subrahmanyan [p.3 and 5 of pdf file] describes pricing models using DP

methods and further states "Price path declines over the season". Cheng teaches an optimized inventory control model also using DP methods where demand is affected by promotion decisions and where "the price discount can be easily incorporated in the model by treating it as a part of the promotion cost." (Cheng [p.1513, Remark 2.2]). Finally Chatwin and Krishnan use DP methods and specifically teaches "time dependent, price paths" (Chatwin [p. 151, col.2]) and dynamic pricing (Krishnan [p.1654]).

19. Therefore, it would have been obvious to a person having ordinary skill in the art to use the known method of hierarchical optimization, as disclosed in Anandalingam, for the purpose of optimizing prices of items because the known method of hierarchical optimization and DP would improve the prices of the items in a predictable way. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). The optimized prices would help to increase profits.

20. Regarding claims 4, 5, 7, 12, 13, 15, 20, 21, and 23 -

21. Anandalingam fails to explicitly disclose wherein selecting the path according to the state values comprises: determining a state at the final stage having a state value; and determining a path comprising a state of an initial stage and the state having the optimal state value and further comprising eliminating a successor state in response to a constraint; and determining a state at the final stage having a certainty value of a predetermined value.

22. However, the Examiner takes Official Notice that it is old and well known in the art to factor in variations over time while modeling data.

23. Therefore, it would have been obvious to a person having ordinary skill in the art to add in time constraints as one of the constraints in Anandalingam, for the purpose of making the model a more accurate depiction of reality. (See, *e.g.*, Price et al. (US 2002/0082881) disclose a system providing dynamic pricing.)

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

25. Gold et al. (US 2002/0032610) disclose the generation of a price based upon various predetermined rules.

26. Reuhl et al. (US 5,873,069) disclose a system for automatic updating and display of retail prices. Prices can vary by market and location.

27. Wijaya et al. (US 7,233,914) disclose substitution rules linking the price of one item to another.

28. Ratliff et al. (US 2003/0191725) disclose the modification of the price of one item based upon the price of another item.

29. Berkovitz et al. (US 200310023567) disclose a method for dynamic pricing, including the rounding of prices.

30. McEwen et al. (US 2002/0107818) disclose a system for expression-based pricing, including pricing relationships.

31. Ouimet (US 7,020,617) discloses a strategic planning and optimization system that optimizes based upon a primary goal, then optimizes based upon auxiliary goals.

32. Price et al. (US 2002/0082881) disclose a system providing dynamic pricing.

33. Eder (US 5,615,109) discloses a method of generating feasible, profit maximizing requisition sets using multi objective linear programming techniques. Impacts of changes are also reflected.

34. Corynen (US 6,735,596) discloses a global system optimization method using sequential multi objective decision problems.

35. Ue-Pyng Wen & Shuh-Tzy Hsu, "Linear Bi-level Programming Problems - A Review," 42 J. Operational Research Society 125 (1991) provide an overview of the well known multi-level programming case of bi-level programming.

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

37. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRISTINA SHERR whose telephone number is (571)272-6711. The examiner can normally be reached on 8:30-5:00 Monday through Friday.

39. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Calvin L. Hewitt, II can be reached on (571)272-6709. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

40. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRISTINA OWEN SHERR
Examiner
Art Unit 3685

/Calvin L Hewitt II/
Supervisory Patent Examiner, Art Unit 3685